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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/837,877	04/19/2001	Shunpei Yamazaki	0756-2298	8131
22204	7590	04/06/2006	EXAMINER	
NIXON PEABODY, LLP 401 9TH STREET, NW SUITE 900 WASHINGTON, DC 20004-2128			LEWIS, MONICA	
			ART UNIT	PAPER NUMBER
			2822	

DATE MAILED: 04/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 09/837,877	<b>Applicant(s)</b> YAMAZAKI ET AL.	
	<b>Examiner</b> Monica Lewis	<b>Art Unit</b> 2822	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 11 January 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1,4-9,17-20,22 and 25-61 is/are pending in the application.
- 4a) Of the above claim(s) 26-61 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-9,17-20 and 22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 December 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |                                                                                                                        |                                                                                         |
|------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                            | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____                                                |

### **DETAILED ACTION**

1. This action is in response to the request for continued examination filed January 11, 2006.

#### ***Continued Examination Under 37 CFR 1.114***

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/11/06 has been entered.

#### ***Specification***

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

#### ***Response to Arguments***

4. Applicant's arguments with respect to claims 1, 4-9, 17-20, 22 and 25-61 have been considered but are moot in view of the new ground(s) of rejection.

#### ***Election/Restrictions***

5. Newly submitted claims 26-61 are directed to an invention that is independent or distinct from the invention originally claimed. The new claims are directed to claims that were held to be non-elected in the 2/25/05 office action.

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Since applicant has received an action on the merits for the claims drawn to the elected species of the invention, newly submitted claims 26-61 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

***Claim Objections***

6. Claim 9 is objected to because there is insufficient antecedent basis for the following limitations: a) the source wiring line; and b) the gate wiring line. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claims 1, 5, 6, 9, 17-20, 22 and 25 are rejected under 35 U.S.C. 103(a) as obvious over Kawasaki et al. (U.S. Patent No. 6,424,012) in view of Yeo et al. (U.S. Patent No. 6,534,788).

In regards to claim 1, Kawasaki et al. ("Kawasaki") discloses the following:

a) the pixel TFT has a channel formation region (407) formed over a first wiring line (403) with a first insulating layer (402) interposed, and has a low concentration impurity region (406) that is in contact with the channel formation region and overlaps the first wiring line (For Example: See Figure 8b); and

b) the storage capacitor is formed from a capacitor wiring line (415), a semiconductor region (414) that has the same composition as the channel formation region or the low concentration impurity region, a part of the insulating layer and wherein the first wiring line and the capacitor wiring line are formed on the same layer (For Example: See Figure 8b).

In regards to claim 1, Kawasaki fails to disclose the following:

a) a gate electrode is formed over the channel formation region with a second insulating layer interposed therebetween.

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However, Yeo et al. ("Yeo") discloses the use of a gate electrode (26G) that is formed over the channel formation region (24C) with a second insulating layer (25) interposed therebetween (For Example: See Figure 2). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Kawasaki to include a gate electrode is formed over the channel formation region with a second insulating layer interposed therebetween as disclosed in Yeo because it aids in improving the reducing the off current (For Example: See Column 2 Lines 15-32).

Additionally, since Kawasaki and Yeo are both from the same field of endeavor, the purpose disclosed by Yeo would have been recognized in the pertinent art of Kawasaki.

In regards to claim 5, Kawasaki discloses the following:

a) the channel formation region of the pixel TFT and the semiconductor region of the storage capacitor are formed of the same semiconductor layer (For Example: See Figure 8b).

In regards to claim 6, Kawasaki discloses the following:

a) the first insulating layer is appropriately an oxide or halogenated compound containing an element selected from the group consisting of tantalum (Ta), titanium (Ti), barium (Ba), hafnium (Hf), bismuth (Bi), tungsten (W), thorium (Th), and lead (Pb) (For Example: See Column 19 Lines 45-51).

In regards to claim 9, Kawasaki discloses the following:

a) the pixel TFT is connected to the source wiring line (416) and the gate wiring line, and the storage capacitor is formed under the source wiring line and/or the gate wiring line (For Example: See Figure 8b and Column 20 Lines 10-14).

In regards to claim 17, Kawasaki discloses the following:

a) semiconductor device is an active matrix liquid crystal display or an active matrix EL display (For Example: See Column 1 Lines 5-22).

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In regards to claim 18, Kawasaki discloses the following:

a) semiconductor device is a video camera, a digital camera, a projector, a projection TV, a goggle type display, an automobile navigation system, a personal computer, or a portable information terminal (For Example: See Column 1 Lines 5-22).

In regards to claim 19, Kawasaki discloses the following:

a) a cross section of the first wiring is taper shaped (For Example: See Figure 8b).

In regards to claim 20, Kawasaki discloses the following:

a) a cross section of the capacitor wiring line is taper shaped (For Example: See Figure 8b).

In regards to claim 22, Kawasaki discloses the following:

a) wherein the insulating layer comprises a first insulating layer and a second insulating layer (For Example: See Figure 8b and Column 19 Lines 45-51).

In regards to claim 25, Kawasaki fails to disclose the following:

a) the first wiring line and the gate electrode have the same electric potential.

However, Yeo discloses that the first wiring line (21G) and the gate electrode (26G) have the same electric potential (For Example: See Column 5 Lines 57-65). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Kawasaki to include that the first wiring line and the gate electrode have the same electric potential as disclosed in Yeo because it aids in increasing the on current (For Example: See Column 5 Lines 57-65).

Additionally, since Kawasaki and Yeo are both from the same field of endeavor, the purpose disclosed by Yeo would have been recognized in the pertinent art of Kawasaki.

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9. Claim 4 is rejected under 35 U.S.C. 103(a) as obvious over Kawasaki et al. (U.S. Patent No. 6,424,012) in view of Yeo et al. (U.S. Patent No. 6,534,788) and Ogawa et al. (U.S. Patent No. 6,362,507).

In regards to claim 4, Kawasaki fails to disclose the following:

a) the first wiring line is appropriately a conductive film mainly containing an element selected from the group consisting of tantalum (Ta), chromium (Cr), titanium (Ti), tungsten (W), molybdenum (Mo), and silicon (Si), or an alloy film or silicide film containing the above elements in combination, or a laminate of the conductive films, the alloy films, or the silicide films.

However, Ogawa discloses the use of a first wiring line that contains titanium (For Example: See Column 9 Lines 25-30). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Kawasaki to include the use of titanium as disclosed in Ogawa because it aids in improving the reliability and the operation performance of the device (For Example: See Abstract).

Additionally, since Kawasaki and Ogawa are both from the same field of endeavor, the purpose disclosed by Ogawa would have been recognized in the pertinent art of Kawasaki.

10. Claim 7 is rejected under 35 U.S.C. 103(a) as obvious over Kawasaki et al. (U.S. Patent No. 6,424,012) in view of Yeo et al. (U.S. Patent No. 6,534,788) and Someya et al. (U.S. Publication No. 2002/0080295).

In regards to claim 7, Kawasaki discloses the following:

a) the first wiring line (For Example: See Figure 8b).

In regards to claim 7, Kawasaki fails to disclose the following:

a) floating state.

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However, Someya et al. ("Someya") discloses the use of floating state (For Example: See Paragraph 148). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Kawasaki to include the use of floating state as disclosed in Someya because it aids in preventing deterioration (For Example: See Paragraph 148 and 149).

Additionally, since Kawasaki and Someya are both from the same field of endeavor, the purpose disclosed by Someya would have been recognized in the pertinent art of Kawasaki.

11. Claim 8 is rejected under 35 U.S.C. 103(a) as obvious over Kawasaki et al. (U.S. Patent No. 6,424,012) in view of Yeo et al. (U.S. Patent No. 6,534,788) and Murade (U.S. Publication No. 2001/0030722).

In regards to claim 8, Kawasaki discloses the following:

- a) the first wiring line (For Example: See Figure 8b).

In regards to claim 8, Kawasaki fails to disclose the following:

- a) the first wiring line is kept at the lowest power supply electric potential.

However, Murade discloses the use of the lowest potential (For Example: See Paragraph 15). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the semiconductor device of Kawasaki to include the use of the lowest potential as disclosed in Murade because it aids in preventing deterioration (For Example: See Paragraph 15).

Additionally, since Kawasaki and Murade are both from the same field of endeavor, the purpose disclosed by Murade would have been recognized in the pertinent art of Kawasaki.



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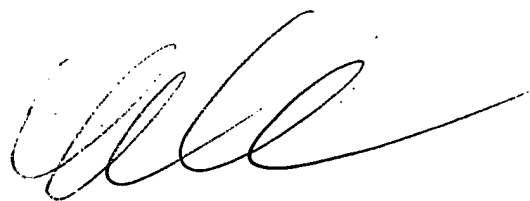
***Conclusion***

12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica Lewis whose telephone number is 571-272-1838. °

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300 for regular and after final communications.

ML

April 3, 2006

A handwritten signature in black ink, consisting of stylized, overlapping loops and a long horizontal stroke extending to the right.